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# SCIENCE

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FRIDAY, MAY 1, 1896.

ANNUAL MEETING OF THE NATIONAL ACADEMY OF SCIENCES.

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MSS. intended for publication and books etc., intended for review should be sent to the responsible editor, Prof. J. McKeen Cattell, Garrison-on-Hudson, N. Y.

THE annual meeting of the *Academy* was held in Washington on April 20, 21, 22, 23 and 25, Prof. Wolcott Gibbs, President, in the chair. The following members were present: Cleveland Abbe, Washington; Carl Barus, Providence; A. Graham Bell, Washington; John S. Billings, U. S. N.; Lewis Boss, Albany; Henry P. Bowditch, Boston; W. H. Brewer, New Haven; W. K. Brooks, Baltimore; E. D. Cope, Philadelphia; S. F. Emmons, Washington; Wolcott Gibbs, Newport; G. K. Gilbert, Washington; Theodore N. Gill, Washington; G. Brown Goode, Washington; B. A. Gould, Cambridge; Arnold Hague, Washington; Asaph Hall, Washington; C. S. Hastings, New Haven; G. W. Hill, West Nyack, N. Y.; Alpheus Hyatt, Boston; O. C. Marsh, New Haven; A. M. Mayer, Hoboken, N. J.; R. Mayo-Smith, New York; T. C. Mendenhall, Worcester, Mass.; A. A. Michelson, Chicago; E. S. Morse, Salem; J. W. Powell, Washington; F. W. Putnam, Cambridge; Ira Remsen, Baltimore; W. A. Rogers, Waterville, Me.; Ogden N. Rood, New York; H. A. Rowland, Baltimore. Charles S. Sargent, Cambridge; Charles A. Schott, Washington; Samuel H. Scudder, Cambridge; William Sellers, Philadelphia; A. E. Verrill, New Haven; Francis A. Walker, Boston; W. H. Welch, Baltimore; Charles A. White, Washington; A. W.

Wright, New Haven. Forty-one members were present in all, nine more than at the preceding annual meeting.

In accordance with the recommendations made at the preceding meeting, the mornings were reserved for business, and the scientific sessions were held in the afternoon, the papers being arranged so that as far as possible those upon kindred topics should follow one another. The papers entered to be read were as follows:

I. *The Geological Efficacy of Alkali Carbonate Solution*, E. W. HILGARD.

II. *On the Color Relations of Atoms, Ions and Molecules*, M. CAREY LEA.

III. *On the Characters of the Otocelidæ*, E. D. COPE.

IV. *Exhibition of a Linkage whose motion shows the Laws of Refraction of Light*, A. M. MAYER.

V. *Location in Paris of the Dwelling of Malus, in which he made the discovery of the Polarization of Light by Reflection*, A. M. MAYER.

VI. (1) *On Experiments showing that the X-Rays cannot be Polarized by passing through Herapathite.*

(2) *The Density of Herapathite.*

(3) *Formulae of Transmission of the X-rays, through Glass, Tourmaline and Herapathite*, A. M. MAYER.

VII. *On the X-Rays from a Statical Current produced by a Rapidly Revolving Leather Belt*, W. A. ROGERS and FREDERICK BROWN.

VIII. *Biographical Memoir of James Edward Oliver*, G. W. HILL.

IX. *Biographical Memoir of Charles Henry Davis*, C. H. DAVIS.

X. *Biographical Memoir of George Engelmann*, C. A. WHITE.

XI. *Legislation Relating to Standards*, T. C. MENDENHALL.

XII. *On the Determination of the Coefficient of Expansion of Jessop's Steel, between the limits of 0° and 64° C., by the Interferential Method*, E. W. MORLEY and W. A. ROGERS.

XIII. *On the Separate Measurement, by the Interferential Method of the Heating Effect of Pure Radiations and of an Envelope of Heated Air*, W. A. ROGERS.

XIV. *On the Logic of Quantity*, C. S. PEIRCE.

XV. *Judgment in Sensation and Perception*, J. W. POWELL.

XVI. *The Variability in Fermenting Power of the Colon Bacillus under different Conditions*. By A. W. PECKHAM. (Presented by J. S. BILLINGS.)

XVII. *Experiments on the Reflection of the Röntgen Rays*, O. N. ROOD.

XVIII. *Notes on Röntgen Rays*, H. A. ROWLAND.

XIX. *Some studies in Chemical Equilibrium*, IRA REMSEN.

XX. *The Decomposition of Diazo-compounds by Alcohol*, IRA REMSEN.

XXI. *On Double Halides containing Organic Bases*, IRA REMSEN.

XXII. *Results of Researches of Forty Binary Stars*, T. J. J. SEE.

XXIII. *On a Remarkable New Family of Deep-sea Cephalopoda and its bearing on Molluscan Morphology*, A. E. VERRILL.

XXIV. *The Question of the Molluscan Archetype, an Archi-mollusk*, A. E. VERRILL.

XXV. *On some Points in the Morphology and Phylogeny of the Gastropoda*, A. E. VERRILL.

XXVI. *Source of X-Rays*, A. A. MICHELSON and S. W. STRATTON.

XXVII. *The Relative Permeability of Magnesium and Aluminum to the Röntgen Rays*, A. W. WRIGHT.

XXVIII. *The State of Carbo-dioxide at the Critical Temperature*, C. BARUS.

XXIX. *The Motion of a Submerged Thread of Mercury*, C. BARUS.

XXX. *On a Method of obtaining Variable Capillary Apertures of Specified Diameter*, C. BARUS.

XXXI. *On a New Type of Telescope Free from Secondary Color*, C. S. HASTINGS.

XXXII. *The Olindiadae and other Medusae*, W. K. BROOKS.

XXXIII. *Budding in Perophora*, W. K. BROOKS and GEORGE LEFEVRE.

XXXIV. *Anatomy of Yoldia*, W. K. BROOKS and GILMAN DREW.

XXXV. *On the Pithecanthropus Erectus from the Tertiary of Java*, O. C. MARSH.

Prof. H. P. Bowditch was elected a member of the council in the place of Prof. G. L. Goodale, who asked to be relieved from the duties of the office. Charles D. Walcott, director of the United States Geological Survey, and R. S. Woodward, Professor of Mechanics in Columbia University, were elected members of the Academy. The death was announced of Gen. Thomas L. Casey, U. S. A. There are now eighty-nine members of the Academy, eighty-three members have died since its foundation in 1863.

During the meeting of the Academy the committee appointed at the request of the Secretary of the Interior to report on a forestry policy for the government held several sessions. Members of the Academy appeared before the Senate committee having charge of the bill to fix the standard of weights and measures by the adoption of the metric system. Profs. Ira Remsen, John Trowbridge and G. J. Brush were appointed delegates to attend the sesqui-centennial celebration of Princeton Univ. A reception was given to members of the academy and invited guests by Mr. and Mrs. Arnold Hague on the evening of April 22d.

The autumn meeting of the Academy for the reading of scientific papers will be held in New York, beginning November 17th.

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*GEOLOGIC ATLAS OF THE UNITED STATES.*  
FOLIO 2, RINGGOLD, GEORGIA-TENNESSEE, 1894.

This folio consists of 3 pages of text, signed by C. Willard Hayes, geologist; a topographic sheet (scale 1 : 125,000), a

sheet of areal geology, one of economic geology, one of structure sections, and one giving columnar sections.

*Geography.*—The district of country covered by this folio lies mainly in Georgia, a narrow strip about a mile in width along its northern border extending into Tennessee. It embraces portions of Dade, Catoosa, Walker, Whitfield, Chattooga, Floyd and Gordon counties in Georgia, and of Madison, Hamilton and James counties in Tennessee. The region forms a part of the great Appalachian Valley. Its surface is marked by three distinct types of topography, viz.: plateaus, formed by hard rocks whose beds are nearly horizontal; sharp ridges, formed by hard rocks whose beds are steeply inclined; and level or undulating valleys, formed on soft or easily eroded rocks. The plateaus are confined to the western third of the district and include portions of Lookout and Sand Mountains. Their surface is generally level or rolling, with a slight inclination from the edges toward the center, giving the plateau the form of a shallow trough. They are bounded by steep escarpments rising from 1,000 to 1,200 feet above the surrounding valleys. The sharp ridges are confined to the eastern third of the district, while a broad undulating valley occupies its central portion. The latter is drained in part northward by tributaries of the Tennessee, and in part southward by streams flowing directly to the Gulf. The divide separating the two drainage systems is broad and low, and there is evidence that the Tennessee River formerly flowed southward across the divide.

*Geology.*—The rocks appearing at the surface within the Ringgold district are entirely of sedimentary origin and include representatives of all the Paleozoic groups. The oldest rocks exposed are shales, sandstones and thin-bedded limestones of lower and middle Cambrian age. These are